

REMARKS

By the present amendment, claim 1 has been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. In particular, independent claim 1 has been amended to incorporate the subject matter of claim 2 therein and claim 2 has been cancelled. In addition, the dependency of dependent claim 6 has been altered accordingly. Entry of these amendments is respectfully requested.

In the Office Action, the restriction requirement between claims 1-3 and 6-8 drawn to a processing aid and claims 4 and 5 drawn to a thermoplastic composition was reiterated. As required, the provisional election of claims 1-3 and 6-8 is hereby affirmed.

Claim 1 was rejected under 35 USC § 102(b) as being anticipated by any one of the patents to Shimada, Yamamoto et al, Higuchi et al and Maeda. In making this rejection, it was asserted that each of the cited patents teaches polymers as claimed. In addition, claims 1 and 3 were rejected under 35 USC § 102(b) as being anticipated by either the '950 Japanese patent publication or the patent to Albrecht. In making this rejection, it was asserted that each of the cited patent publications teaches a composition having the recited molecular weight which is obtained from polymerizing (1) methyl methacrylate and (3) an organic peroxide having a t-butyl peroxy group in the amounts recited in claim 3. It was further asserted that the compositions also include (2) a mercaptan of the type recited

for use as a chain transfer agent. Reconsideration of these rejections in view of the above claim amendments and the following comments is respectfully requested.

As noted above, independent claim 1 has been amended to incorporate the subject matter of claim 2 therein and claim 2 has been cancelled. It is therefore submitted that the subject rejections are now moot. Accordingly, withdrawal of the two rejections under 35 U.S.C. § 102(b) and allowance of claims 1 and 3 as amended over the cited patent publications are respectfully requested.

Claims 1-3 and 6 were rejected under 35 USC § 102(b) as being anticipated by either the patent Hoebeke or the patent to Tugukuni et al. In making these rejections, it was asserted that each of the cited patent publications teaches a composition having the recited molecular weight which is obtained from polymerizing (1) methyl methacrylate and (4) a (meth)acrylate having an oxygen atom in addition to an ester bond in conjunction with (3) an organic peroxide having a t-butyl peroxy group in the amounts recited in claim 3 (Hoebeke) or (2) a mercaptan of the type recited for use as a chain transfer agent (Tugukuni et al.). Reconsideration of these rejections in view of the above claim amendments and the following comments is respectfully requested.

Before discussing the rejections in detail, a brief review of the presently claimed invention may be quite instructive. An important feature of the claimed processing aid is that the aid is obtained by conducting emulsion polymerization using (meth)acrylate having

an oxygen atom in addition to an ester bond, as alkyl (meth)acrylate. A comparison of Examples 1 to 7 and Comparative Example 1 demonstrates that the polymer obtained by using (meth)acrylate having an oxygen atom in addition to an ester bond is excellent in peeling property as compared with a polymer obtained without using (meth)acrylate having an oxygen atom in addition to an ester bond. Another important feature of the present invention is the aid is obtained using a mercaptan having an alkyl ester group as a chain transfer agent and/or an organic peroxide having a t-butyl peroxy group as a polymerization initiator. It is submitted that a processing aid having these features, among others, is not taught nor suggested by the cited patents to Hoebeke and Tugukuni.

More specifically, the Hoebeke patent discloses a (meth)acrylate copolymer containing glycidyl (meth)acrylate obtained by using dodecyl mercaptan and di-butyl peroxide. The Tugukuni patent discloses a methacrylate copolymer containing glycidyl (meth)acrylate obtained by using dodecyl mercaptan and di-t-butyl peroxide. However, neither of these patents teach or suggest, among other things, the use of a mercaptan having an alkyl ester group which is an important feature of the present invention.

In addition to the above, the Hoebeke patent does not teach or suggest the use of an organic peroxide having a t-butyl peroxy group. Furthermore, in the Tugukuni patent, di-t-butyl peroxide is not used in an example although mentioned in the specification, and the effect of the use of an organic peroxide having a t-butyl peroxy group is not mentioned.

As discussed above, an important feature of the present invention is the aid is obtained using a mercaptan having an alkyl ester group as a chain transfer agent and/or an organic peroxide having a t-butyl peroxy group as a polymerization initiator. A comparison of Examples 8, 23 to 26 and Comparative Example 7 of the subject specification demonstrates that the polymer obtained by using a mercaptan having an alkyl ester group is excellent in peeling property as compared with the polymer obtained without using mercaptan having an alkyl ester group. From a comparison of Examples 8, 27 to 29 and Comparative Examples 12-14, it is demonstrated that the polymer obtained by using an organic peroxide having t-butyl peroxy group is excellent in peeling property as compared with the polymer obtained without using organic peroxide having t-butyl peroxy group.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 102(b) and allowance of claims 1, 3 and 6 over the cited patent publications are respectfully requested.

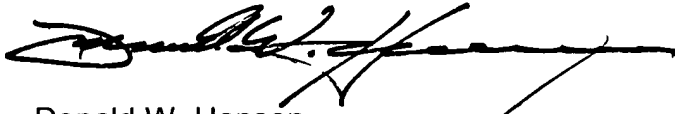
In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

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In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

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Marked Up Version of Amendments to Specification and Claims

IN THE CLAIMS:

Amend the claims as follows:

1. (Amended) A processing aid for thermoplastic resin having a weight average molecular weight of 10,000 to 300,000, which is obtained by emulsion-polymerizing 0.1 to 10 % by weight of polymerizing an alkyl (meth)acrylate having an oxygen atom in addition to an ester bond, or an alkyl (meth)acrylate 10 to 99.9 by weight of another alkyl acrylate, and 0.89.9 % by weight of another vinyl monomer copolymerizable therewith, in the presence of a mercaptan having an alkyl ester group with C₄₋₂₀ alkyl group as a chain transfer agent, and/or an organic peroxide having a tertiary-butyl peroxy group as a polymerization initiator.

Cancel claim 2.

6. (Amended) The processing aid for thermoplastic resin of Claim 1 2, wherein the (meth)acrylate having an oxygen atom in addition to an ester bond is a (meth)acrylate containing an epoxy group.